Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CH207

Course Name: CHEMISTRY FOR PROCESS ENGINEERING-I

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

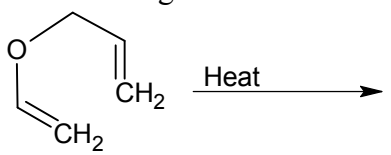
1 a) Comment on the aromaticity on the following compounds. Justify your answer with structure: (8)
i) Cyclobutadiene ii) Tropylium cation iii) Cyclooctatetraene iv) Azulene

b) Write the mechanism of anti-Markownikoff's addition (4)

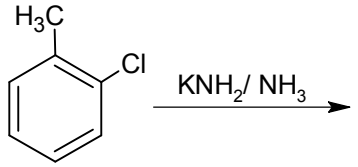
c) What is the use of osmium tetroxide? Explain with an example (3)

2 a) What are crown ethers? Describe the applications of crown ethers as phase transfer catalyst (any two examples). (5)

b) Predict the mechanism of the following reaction (3)



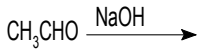
c) Complete the reaction series and write the mechanism of the following reaction (5)



d) Compare the basicities of pyridine and pyrrole. Explain with structure (2)

3 a) Beckmann rearrangement is the back bone of the synthesis of caprolactam. (5)

b) Give the mechanism of the following reaction (3)



c) Explain the directive influence of electrophilic substitution of benzoic acid. (3)

d) State and explain Huckel's rule of aromaticity. (4)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Describe the action of heat on α, β and γ amino acids. Give equations. (6)

b) Explain the Ninhydrin test for the identification of proteins (2)

c) What is meant by hydrogenation of oils? How it is performed? What is the advantage of it? Explain with equation (4)

d) Give the synthesis and use of pararosaniline. (3)

5 a) Describe the Strecker method for the synthesis of amino acid. (3)

b) Explain Ruff's method for descending a sugar series. (3)

c) What is meant by denaturation of proteins? Explain. (2)

d) Give the structure and use of pentachlorophenol, Transfluthrin, malathion and (7)

saccharin.

6 a) Explain the classification of proteins (7)

b) Give the classification of biodegradable polymers (5)

c) What is soap? Explain the cleansing action of soap (3)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Give an account on the classification of Vitamins. Write examples (4)

b) What are antibiotics? Give the name and basic structures three antibiotics. (4)

c) Define the terms apoenzyme and coenzyme (2)

d) Explain the following with mechanism: (10)

i) Norrish Type-I reaction ii) Norrish Type-II reaction iii) Cope rearrangement

8 a) Discuss any three factors affecting enzyme activity. What is meant by the term enzyme inhibitor? Give example (8)

b) What are phospho lipids? Give its function. (2)

c) With the help of Jablonski diagram, explain fluorescence and phosphorescence (7)

d) What is meant by i) sensitization and ii) quenching in photochemistry (3)

9 a) How QSAR models are useful in drug design? (4)

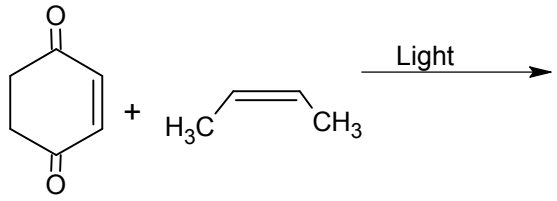
b) Explain the following with one example. Give the chemical structure. (6)

i) Prodrug ii) Sedative iii) Antipyretic

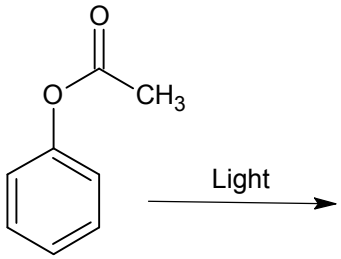
c) Describe one for photochemical reaction and one luminescence reaction taking place in nature (5)

d) Complete the following reaction. Give its mechanism (5)

i)



ii)



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